

WHAT IS CLAIMED IS:

1. A method of manufacturing a circuit board comprising the steps of: forming a first resin layer on a surface of an insulating substrate having a conductive layer on the substrate surface and an internal wall surface of a through hole or/and a non-through hole that is formed in the substrate; forming a second resin layer on the first resin layer provided on the surface of the conductive layer, said second resin layer being insoluble or slightly soluble in a developing solution for the first resin layer, and removing the first resin layer that is provided over the hole with the developing solution for the first resin layer.

2. A method of manufacturing a circuit board comprising the steps of: forming a first resin layer on a surface of an insulating substrate having a through hole or/and a non-through hole and having a conductive layer on a substrate surface with excluding an internal wall surface of said through hole or/and said non-through hole; forming a second resin layer on the first resin layer provided on the surface, said second layer being insoluble or slightly soluble in a developing solution for the first resin layer, and removing the first resin layer that is provided over the hole with the developing solution for the first resin layer.

3. A method of manufacturing a circuit board comprising the steps of: forming a first resin layer on a surface of an insulating substrate having a conductive layer on the substrate surface and an internal wall surface of a through hole or/and a non-through hole that

is formed in the substrate; forming a second resin layer on the first resin layer provided on the surface of the conductive layer; removing the first resin layer provided over the hole; forming a fourth resin layer over the internal wall surface of the through hole or/and the non-through hole; removing the second resin layer, and removing the first resin layer.

4. A method of manufacturing a circuit board comprising the steps of: providing a photo-crosslinkable resin layer on the surface of the conductive layer with respect to an insulating substrate having a conductive layer on the substrate surface and an internal wall of a through hole or/and a non-through hole, which is manufactured by the method according to claim 3, and having a fourth resin layer on the internal wall of the through hole or/and the non-through hole and in a peripheral portion of the hole according to circumstances; crosslinking the photo-crosslinkable resin at a portion corresponding to a circuit portion; removing an unreacted photo-crosslinkable resin layer at a portion corresponding to a non-circuit portion; etching the conductive layer which is exposed, and removing the fourth resin layer and the photo-crosslinkable resin layer.

5. A method for manufacturing a circuit board, comprising the steps of: forming a photo-crosslinkable resin layer on a surface of an insulating substrate having a conductive layer on a substrate surface and an inner wall surface of a through hole or/and a non-through hole that is formed in the substrate; forming a second resin

layer on a portion of the photo-crosslinkable resin layer on the surface of the conductive layer; removing the photo-crosslinkable resin layer that is provided over the hole; providing a fourth resin layer on the conductive layer in the hole; crosslinking a photo-crosslinkable resin at a portion corresponding to a circuit part; removing the second resin layer; removing an unreacted photo-crosslinkable resin layer at a portion corresponding to a non circuit part; etching the exposed portion of the conductive layer; and removing the fourth resin layer and the photo-crosslinkable resin layer.

6. A method for manufacturing a circuit board, comprising the steps of: forming a photoconductive layer on a surface of an insulating substrate having a conductive layer on a substrate surface and the inner wall surface of a through hole or/and a non-through hole that is formed in the substrate; forming a second resin layer on the photoconductive layer except for a portion over the hole; removing the portion of the photoconductive layer over the hole; forming a fourth resin layer on a portion of the conductive layer in the hole; removing the second resin layer; forming an electrostatic latent image on the photoconductive layer; forming a third resin layer on the photoconductive layer at a portion corresponding to a circuit part; removing the photoconductive layer at a portion corresponding to a non circuit part; etching the exposed portion of the conductive layer; and removing the third resin layer, the photoconductive layer, and the fourth resin layer.

7. A method for manufacturing a circuit board,

comprising the steps of: forming a photoconductive layer on a surface of an insulating substrate having a conductive layer on a substrate surface and the inner wall surface of a through hole or/and a non-through hole that is formed in the substrate; forming a second resin layer on the photoconductive layer except for a portion over the hole; removing a portion of the photoconductive layer over the hole; removing the second resin layer; forming an electrostatic latent image on the photoconductive layer; forming a third resin layer on the photoconductive layer at a portion corresponding to a circuit part and on a portion of the conductive layer in the hole; removing a portion of the photoconductive layer corresponding to a non circuit part; etching the exposed portion of the conductive layer; and removing the third resin layer and the photoconductive layer.

8. A method of manufacturing a circuit board comprising the steps of: forming a photo-crosslinkable resin layer as a first resin layer on a surface of an insulating substrate having a first conductive layer on a substrate surface and an internal wall surface of a through hole or/and a non-through hole that is formed in the substrate, forming a second resin layer on the photo-crosslinkable resin layer provided on the surface of the conductive layer, removing the photo-crosslinkable resin layer provided over the hole, crosslinking the photo-crosslinkable resin layer in a portion corresponding to a non-circuit portion, removing an unreacted photo-crosslinkable resin layer and the second resin layer, forming a second conductive layer on the first conductive layer which is exposed, and

removing the photo-crosslinkable resin layer which is crosslinked and removing the first conductive layer in a lower part thereof.

9. The method of manufacturing a circuit board according to any of claims 1, 2, 3, 5, 6, 7 and 8, wherein the step of forming a second resin layer on the first resin layer provided on the surface conductive layer includes the steps of uniformly charging a surface of the first resin layer and inducing a potential difference to the first resin layer provided over the hole and the first resin layer provided on the surface conductive layer, and forming the second resin layer on the first resin layer provided on the surface conductive layer by utilizing the potential difference.

10. The method of manufacturing a circuit board according to any of claims 1, 3, 5, 6 and 7, further comprising the step of providing a plated conductive layer on the conductive layer provided on the internal wall surface of the hole after removing the first resin layer provided over the hole.

11. The method of manufacturing a circuit board according to any of claims 1, 3, 5, 6 and 7, further comprising the steps of providing a plated conductive layer on the conductive layer formed on the internal wall surface of the hole after removing the first resin layer provided over the hole, and removing the first resin layer in a peripheral portion of the hole to enlarge a portion corresponding to a land portion with a first resin layer removing solution.

12. A circuit board in which a circuit portion is formed on an insulating substrate by a conductive layer and there provided a through hole and/or a non-through hole having an internal wall covered or filled with the conductive layer, wherein a land of the through hole and/or the non-through hole is formed continuously like a concentric circle with respect to the hole, a maximum height of the conductive layer in a non-coupling portion of the land is equal to or greater than $-5 \mu\text{m}$ with a corner portion of the insulating substrate set to be a reference point and is equal to or smaller than a thickness of the conductive layer in a circuit portion, and a land width from the reference point is 0 to $40 \mu\text{m}$.

13. The circuit board according to claim 12, wherein a difference between maximum and minimum values of the land width is equal to or smaller than $8 \mu\text{m}$.

14. The circuit board according to claim 12 or 13, wherein a sectional shape of the conductive layer in the circuit portion is different from that of the conductive layer in the land portion.

15. The circuit board according to claim 14, wherein a portion having a maximum height is present within a range from the internal wall of the hole to a thickness of the conductive layer in the hole in the conductive layer of the land.